



# PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

### CERTIFICATE OF MAILING & TRANSMISSION

I hereby certify that on August 2, 2004, which is the date I am signing this certificate, I am depositing this correspondence the United States Postal Service, first class mail, in an envelope addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. I further certify that on 8/14/04, which is the date I am signing this certificate, I am transmitting this summary via facsimile to Art Unit 1645 at (703) 872-9306, known to me to be the facsimile number of Art Unit 1645 and to Examiner Ford at (571) 273-0857, the facsimile number of Examiner Vanessa L. Ford. A copy of the confirmation being kept for recordkeeping purposes.

Jessica Brown

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Applicant:** TING, Kang

**Serial No.:** 09/412,297

**Filed:** October 5, 1999

**Title:** NELL-1 ENHANCED  
BONE MINERALIZATION

**Atty. Docket No.** 38586-329

**Examiner:** FORD, Vanessa L.

**Group Art Unit:** 1645

**Confirmation Number:** 9486

### INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.56

Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, Applicant brings the references listed on the attached Form PTO-1449 to the examiner's attention. 37 C.F.R. § 1.56. These references may be material to examination of the above-identified application. Please do not construe the filing of this information disclosure statement as a representation that applicant has made a search (37 C.F.R. § 1.97(g)), or as an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists. We enclose copies of all cited documents (by mail) and all non-patent cited documents (by facsimile).

This Information Disclosure Statement is being submitted:

- ☐ 1. Within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d), or within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; or before the mailing date of a first Office action on the merits, and therefore, Applicant believes no fee is required;

- ☒ 2. After the period specified in paragraph (1) hereinabove of this section, but is being filed before the mailing date of either a final action under 37 CFR 1.113, or a notice of allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and is accompanied by one of the following:

☐ (a) A statement that either:

- (i) Each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement;

OR

- (ii) No item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement;

OR

- ☒ (b) The fee of \$180 for filing of an Information Disclosure Statement as set forth in 37 C.F.R. 1.17(p).

- ☐ 3. After the period specified in paragraph (2) of this section, but is filed on or before payment of the issue fee and is accompanied by both:

☐ (a) A statement that either:

- (i) Each item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement;

OR

- (ii) No item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement;

- ☐ (b) The fee of \$180.00 for filing of an Information Disclosure Statement as set forth in 37 CFR 1.17(p).

Applicant would appreciate the Examiner initialing and signing a copy of Form PTO-1449, transmitted herewith, indicating that the information has been considered and made of record herein.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the

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cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 501946** referencing order number 38586-329.

August 2, 2004

  
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|---|---|-----------|---|-------------------------------|-----------------|
| <b>Substitute for form 1449A/PTO</b><br><br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(use as many sheets as necessary) |   |           |   | <b>Complete if Known</b>      |                 |
|   |   |           |   | <b>Application Number</b>     | 09/412,297      |
|   |   |           |   | <b>Filing Date</b>            | October 5, 1999 |
|   |   |           |   | <b>First Named Inventor</b>   | TING            |
|   |   |           |   | <b>Art Unit</b>               | 1645            |
|   |   |           |   | <b>Examiner Name</b>          | FORD, Vanessa   |
| <b>Sheet</b>  | 1 | <b>of</b> | 1 | <b>Attorney Docket Number</b> | 38586-329       |

| U.S. PATENT DOCUMENTS |                          |   |                          |  |
|-----------------------|--------------------------|---|--------------------------|--|
| Examiner<br>Initials* | Cite<br>No. <sup>1</sup> | Document Number                           | Issue Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document |
|                       |                          | Number -Kind Code <sup>2</sup> (if known) |                          |  |
|                       | 1                        | US-5,674,844                              | 10-07-1997               | Kuberasampath et al.                               |
|                       | 2                        | US-6,083,690                              | 07-04-2000               | Harris et al.                                      |
|                       | 3                        | US-6,352,972                              | 03-05-2002               | Nimni et al.                                       |
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|                       | 5                        | US-6,462,019                              | 10-08-2002               | Mundy et al.                                       |

| OTHER PRIOR ART – NONPATENT LITERATURE DOCUMENTS |                          |  |                |
|--|--------------------------|--|----------------|
| Examiner<br>Initials                             | Cite<br>No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item<br>(book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s),<br>publisher, city and/or country where published                               | T <sup>2</sup> |
|  | 6                        | BELLOWS, C.G. et al. "Determination of Numbers of Osteoprogenitors Present in Isolated Fetal Rat Calvaria Cells in Vitro." Dev. Biol. (1989) 133(1), pp. 8-13.   |                |
|  | 7                        | BURGER, E.H. et al. "Osteoblast and Osteoclast Precursors in Primary Cultures of Calvarial Bone Cells." Anat Rec. 1986 Jan; 214(1): 32-40. Abstract Only.  |                |
|  | 8                        | HOSHI, K. et al. Fibroblasts of Spinal Ligaments Pathologically Differential Into Chondrocytes Induced by Recombinant Human Bone Morphogenetic Protein-2: Morphological Examinations for Ossification of Spinal Ligaments. Bone Vol. 21, No. 2 (August 1997): 155-162.                             |                |
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|  | 10                       | TAKAGI, K. et al. The reaction of the dura to bone morphogenetic protein (BMP) in repair of skull defects. Ann Surg. Vol. 196, No. 1 (July 1982): 100-109. Abstract only.  |                |
|  | 11                       | TAKAMI, M. et al. CA <sup>2+</sup> -ATPase Inhibitors and Ca <sup>2+</sup> -Ionophore Induce Osteoclast-like Cell Formation in the Cocultures of Mouse Bone Marrow Cells and Calvarial Cells. Biochemical and Biophysical Research Communications, Vol. 237, 1997: 111-115. (Article No. RC977090) |                |
|  | 12                       | TIEU A. et al. "Identification of Human NEL-2 Associated with Premature Suture Fusion." J Dent Res. 77(A):635, 1998 (Presented March 4-7, 1998, Minneapolis, MN). Abstract Only.   |                |
|  | 13                       | TING, K. et al. "NEL-2 Expressed in Unilateral Prematurely Fusing and Fused Coronal Sutures." J Dent Res. 77(B):2224, 1998 (In Abstract book, but withdrew from presentation because unable to make June 24-27, 1998 trip to Nice, France). Abstract Only.   |                |
|  | 14                       | WATANABE, T.K. et al. "Cloning and Characterization of Two Novel Human cDNAs (NELL1 and NELL2) Encoding Proteins with Six EGF-like Repeats." Genomics, Vol. 38, 273-276 (1996).  |                |

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|---------------------------|--|------------------------|--|
| <b>Examiner Signature</b> |  | <b>Date Considered</b> |  |
|---------------------------|--|------------------------|--|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.